What is claimed is:

1. A motion estimation method comprising:

(a) calculating respective mean difference values for a current search point of a search block and neighboring search points within the search block;

(b) performing motion estimation around the current search point if the mean difference value of the current search point is smaller than the mean difference values of the neighboring search points; and

(c) performing motion estimation based on the mean difference values of at least some of the neighboring search points if the mean difference value of the current search point is not smaller than the mean difference values of at least one the neighboring search points.

2. The method as claimed in claim 1, wherein the operation (b) comprises:

(b1) determining a first predetermined number of first search points disposed a first predetermined pixel distance from the current search point, wherein said first search points and the current search point form a first group of points; and

(b2) determining respective mean difference values of the first search points; and

(b3) selecting a motion vector point from among the first group of points, wherein the motion vector point has a smallest mean difference value of the first group of points, and wherein the motion vector point defines a displacement vector for estimating motion.

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3.   The method as claimed in claim 1, wherein the operation (c) comprises:

(c1)   selecting a new current search point from among said neighboring search points, wherein said new current search point has a smallest mean difference value of the neighboring search points;

(c2)   determining a first value based on a first predetermined relationship of the mean difference value of the new current search point and the mean difference value of a first neighboring search point;

(c3)   determining a second value based on a second predetermined relationship of the mean difference value of the new current search point and the mean difference value of a second neighboring search point; and

(c4)   performing motion estimation based on a first correlation between the first value and the second value.

4.   The method as claimed in claim 3, wherein the first predetermined relationship is an absolute difference between the mean difference value of the new current search point and the mean difference value of the first neighboring search point, and

wherein the second predetermined relationship is an absolute difference between the mean difference value of the new current search point and the mean difference value of the second neighboring search point.

5.   The method as claimed in claim 1, wherein the mean difference values are mean absolute difference values.

6.   The method as claimed in claim 4, wherein the mean difference values are mean absolute difference values.

7.   The method as claimed in claim 1, wherein the mean difference values are mean square difference values.

8.   The method as claimed in claim 4, wherein the mean difference values are mean square difference values.

9.   The method as claimed in claim 3, wherein operation (c4) comprises:

(c4a)   determining if the first value equals the second value;

(c4b)   if the first value equals the second value, determining a first predetermined number of first search points disposed a first predetermined pixel distance from the new current search point, wherein said first search points and the new current search point form a first group of points; and

(c4c)   if the first value equals the second value, determining respective mean difference values of the first search points; and

(c4d)   if the first value equals the second value, selecting the motion vector point from among the first group of points, wherein the motion vector point has a smallest mean difference value of the first group of points.

10.   The method as claimed in claim 3, wherein operation (c4) comprises:

(c4a)   determining if the first value is greater than the second value;

(c4b) if the first value is greater than the second value, determining a first intermediate point between the new current search point and the second neighboring point; and

(c4c) if the first value is greater than the second value, determining a mean difference value for the first intermediate point.

11. The method as claimed in claim 10, wherein the operation (c4c) comprises:

(c4c1) determining if the mean difference value of the first intermediate point equals the mean difference value of the new current search point;

(c4c2) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, determining a second intermediate point between the first intermediate point and the new current search point;

(c4c3) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, determining a first predetermined number of first search points disposed a first predetermined pixel distance from the second intermediate point, wherein the first search points and the second intermediate point form a first group of points;

(c4c4) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, determining respective mean difference values of the first search points; and

(c4c5) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, selecting the motion vector

point from among the first group of points, wherein the motion vector point has a smallest mean difference value of the first group of points.

12.   The method as claimed in claim 10, wherein the operation (c4c) comprises:

(c4c1) determining if the mean difference value of the first intermediate point is greater than mean difference value of the new current search point;

(c4c2) if the mean difference value of the first intermediate point is greater than the mean difference value of the new current search point, selecting the first intermediate point as a second new current search point;

(c4c3) if the mean difference value of the first intermediate point is greater than the mean difference value of the new current search point, determining a first predetermined number of first search points disposed a first predetermined pixel distance from the second new current search point, wherein the first search points and the second new current search point form a first group of points;

(c4c4) if the mean difference value of the first intermediate point is greater than the mean difference value of the new current search point, determining respective mean difference values of the first search points; and

(c4c5) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, selecting the motion vector point based on the mean difference values of the first group of points.

13.   The method as claimed in claim 3, wherein operation (c4) comprises:

(c4a)   determining if the first value is greater than the second value;

(c4b)   if the first value is not greater than the second value, determining a first intermediate point between the new current search point and the first neighboring point; and

(c4c)   if the first value is not greater than the second value, determining a mean difference value for the first intermediate point.

14.   The method as claimed in claim 13, wherein operation (c4b) comprises:

(c4b1) if the first value is greater than the second value, determining a first intermediate point between the new current search point and the second neighboring point.

15.   The method as claimed in claim 12, wherein operation (c4c5) comprises:

(c4c5a)   determining if the mean difference value of the second new current search point is smaller that the mean difference values of the remaining first group of points;

(c4c5b)   if the mean difference value of the second new current search point is smaller that the mean difference values of the remaining first group of points, determining a second predetermined number of second search points disposed a second predetermined pixel distance from the second new current search point, wherein the second search points and the second new current search point form a second group of points;

(c4c5c)   if the mean difference value of the second new current search point is smaller that the mean difference values of the remaining first group of points, determining respective mean difference values of the second search points; and

(c4c5d)   if the mean difference value of the second new current search point is smaller that the mean difference values of the remaining first group of points, selecting the motion vector point from among the second group of points, wherein the motion vector point has a smallest mean difference value of the second group of points.

16.   The method as claimed in claim 12, wherein operation (c4c5) comprises:

(c4c5a)   determining if the mean difference value of the second new current search point is smaller that the mean difference values of the remaining first group of points;

(c4c5b)   if the mean difference value of the second new current search point is not smaller that the mean difference values of the remaining first group of points, selecting a selected point of the first group of points, wherein the selected point has a mean difference value smaller than the remaining first group of points;

(c4c5c)   if the mean difference value of the second new current search point is not smaller that the mean difference values of the remaining first group of points, determining a third value based on a third predetermined relationship of the mean difference value of the selected point and the mean difference value of a third neighboring search point;

(c4c5d)   if the mean difference value of the second new current search point is not smaller that the mean difference values of the remaining first group of

points, determining a fourth value based on a fourth predetermined relationship of the mean difference value of the selected point and the mean difference value of a third neighboring search point; and

(c4c5e)   if the mean difference value of the second new current search point is not smaller that the mean difference values of the remaining first group of points, performing motion estimation based on a second correlation between the third value and the fourth value.

17.   The method as claimed in claim 10, wherein the operation (c4c) comprises:

(c4c1)   determining if the mean difference value of the first intermediate point is greater than mean difference value of the new current search point;

(c4c2)   if the mean difference value of the first intermediate point is not greater than the mean difference value of the new current search point, determining a first predetermined number of first search points disposed a first predetermined pixel distance from the new current search point, wherein the first search points and the new current search point form a first group of points;

(c4c4)   if the mean difference value of the first intermediate point is not greater than the mean difference value of the new current search point, determining respective mean difference values of the first search points; and

(c4c5)   if the mean difference value of the first intermediate point is not greater than the mean difference value of the new current search point, selecting the motion vector point based on the mean difference values of the first group of points.

18. The method as claimed in claim 17, wherein operation (c4c5) comprises:

(c4c5a) determining if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points;

(c4c5b) if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points, determining a second predetermined number of second search points disposed a second predetermined pixel distance from the new current search point, wherein the second search points and the new current search point form a second group of points;

(c4c5c) if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points, determining respective mean difference values of the second search points; and

(c4c5d) if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points, selecting the motion vector point from among the second group of points, wherein the motion vector point has a smallest mean difference value of the second group of points.

19. The method as claimed in claim 17, wherein operation (c4c5) comprises:

(c4c5a) determining if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points;

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(c4c5b)   if the mean difference value of the new current search point is not smaller that the mean difference values of the remaining first group of points, selecting a selected point of the first group of points, wherein the selected point has a mean difference value smaller than the remaining first group of points;

(c4c5c)   if the mean difference value of the new current search point is not smaller that the mean difference values of the remaining first group of points, determining a third value based on a third predetermined relationship of the mean difference value of the selected point and the mean difference value of a third neighboring search point;

(c4c5d)   if the mean difference value of the new current search point is not smaller that the mean difference values of the remaining first group of points, determining a fourth value based on a fourth predetermined relationship of the mean difference value of the selected point and the mean difference value of a fourth neighboring search point; and

(c4c5e)   if the mean difference value of the new current search point is not smaller that the mean difference values of the remaining first group of points, performing motion estimation based on a second correlation between the third value and the fourth value.

20.   Software contained in a computer readable medium comprising instructions to instruct a processor to perform a routine comprising:

(a)   calculating respective mean difference values for a current search point of a search block and neighboring search points within the search block;

(b)   performing motion estimation around the current search point if the mean difference value of the current search point is smaller than the mean difference values of the neighboring search points; and

(c)   performing motion estimation based on the mean difference values of at least some of the neighboring search points if the mean difference value of the current search point is not smaller than the mean difference values of at least one the neighboring search points.

21.   The software as claimed in claim 20, wherein the operation (b) comprises:

(b1)   determining a first predetermined number of first search points disposed a first predetermined pixel distance from the current search point, wherein said first search points and the current search point form a first group of points; and

(b2)   determining respective mean difference values of the first search points; and

(b3)   selecting a motion vector point from among the first group of points, wherein the motion vector point has a smallest mean difference value of the first group of points, and

wherein the motion vector point defines a displacement vector for estimating motion.

22.   The software as claimed in claim 20, wherein the operation (c) comprises:

(c1)   selecting a new current search point from among said neighboring search points, wherein said new current search point has a smallest mean difference value of the neighboring search points;

(c2)   determining a first value based on a first predetermined relationship of the mean difference value of the new current search point and the mean difference value of a first neighboring search point;

(c3)   determining a second value based on a second predetermined relationship of the mean difference value of the new current search point and the mean difference value of a second neighboring search point; and

(c4)   performing motion estimation based on a first correlation between the first value and the second value.

23.   The software as claimed in claim 22, wherein the first predetermined relationship is an absolute difference between the mean difference value of the new current search point and the mean difference value of the first neighboring search point, and

wherein the second predetermined relationship is an absolute difference between the mean difference value of the new current search point and the mean difference value of the second neighboring search point.

24.   The software as claimed in claim 20, wherein the mean difference values are mean absolute difference values.

25.   The software as claimed in claim 23, wherein the mean difference values are mean absolute difference values.

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26. The software as claimed in claim 20, wherein the mean difference values are mean square difference values.

27. The software as claimed in claim 23, wherein the mean difference values are mean square difference values.

28. The software as claimed in claim 22, wherein operation (c4) comprises:

(c4a) determining if the first value equals the second value;

(c4b) if the first value equals the second value, determining a first predetermined number of first search points disposed a first predetermined pixel distance from the new current search point, wherein said first search points and the new current search point form a first group of points; and

(c4c) if the first value equals the second value, determining respective mean difference values of the first search points; and

(c4d) if the first value equals the second value, selecting the motion vector point from among the first group of points, wherein the motion vector point has a smallest mean difference value of the first group of points.

29. The software as claimed in claim 22, wherein operation (c4) comprises:

(c4a) determining if the first value is greater than the second value;

(c4b) if the first value is greater than the second value, determining a first intermediate point between the new current search point and the second neighboring point; and

(c4c) if the first value is greater than the second value, determining a mean difference value for the first intermediate point.

30.   The software as claimed in claim 29, wherein the operation (c4c) comprises:

(c4c1) determining if the mean difference value of the first intermediate point equals the mean difference value of the new current search point;

(c4c2) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, determining a second intermediate point between the first intermediate point and the new current search point;

(c4c3) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, determining a first predetermined number of first search points disposed a first predetermined pixel distance from the second intermediate point, wherein the first search points and the second intermediate point form a first group of points;

(c4c4) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, determining respective mean difference values of the first search points; and

(c4c5) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, selecting the motion vector

point from among the first group of points, wherein the motion vector point has a smallest mean difference value of the first group of points.

31.   The software as claimed in claim 29, wherein the operation (c4c) comprises:

(c4c1) determining if the mean difference value of the first intermediate point is greater than mean difference value of the new current search point;

(c4c2) if the mean difference value of the first intermediate point is greater than the mean difference value of the new current search point, selecting the first intermediate point as a second new current search point;

(c4c3) if the mean difference value of the first intermediate point is greater than the mean difference value of the new current search point, determining a first predetermined number of first search points disposed a first predetermined pixel distance from the second new current search point, wherein the first search points and the second new current search point form a first group of points;

(c4c4) if the mean difference value of the first intermediate point is greater than the mean difference value of the new current search point, determining respective mean difference values of the first search points; and

(c4c5) if the mean difference value of the first intermediate point equals the mean difference value of the new current search point, selecting the motion vector point based on the mean difference values of the first group of points.

32.   The software as claimed in claim 22, wherein operation (c4) comprises:

(c4a)   determining if the first value is greater than the second value;

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(c4b) if the first value is not greater than the second value, determining a first intermediate point between the new current search point and the first neighboring point; and

(c4c) if the first value is not greater than the second value, determining a mean difference value for the first intermediate point.

33. The software as claimed in claim 32, wherein operation (c4b) comprises:

(c4b1) if the first value is greater than the second value, determining a first intermediate point between the new current search point and the second neighboring point.

34. The software as claimed in claim 31, wherein operation (c4c5) comprises:

(c4c5a) determining if the mean difference value of the second new current search point is smaller that the mean difference values of the remaining first group of points;

(c4c5b) if the mean difference value of the second new current search point is smaller that the mean difference values of the remaining first group of points, determining a second predetermined number of second search points disposed a second predetermined pixel distance from the second new current search point, wherein the second search points and the second new current search point form a second group of points;

(c4c5c)   if the mean difference value of the second new current search

point is smaller that the mean difference values of the remaining first group of points,

determining respective mean difference values of the second search points; and

(c4c5d)   if the mean difference value of the second new current search

point is smaller that the mean difference values of the remaining first group of points,

selecting the motion vector point from among the second group of points, wherein the

motion vector point has a smallest mean difference value of the second group of

points.

35.   The software as claimed in claim 31, wherein operation (c4c5)

comprises:

(c4c5a)   determining if the mean difference value of the second new

current search point is smaller that the mean difference values of the remaining first

group of points;

(c4c5b)   if the mean difference value of the second new current search

point is not smaller that the mean difference values of the remaining first group of

points, selecting a selected point of the first group of points, wherein the selected

point has a mean difference value smaller than the remaining first group of points;

(c4c5c)   if the mean difference value of the second new current search

point is not smaller that the mean difference values of the remaining first group of

points, determining a third value based on a third predetermined relationship of the

mean difference value of the selected point and the mean difference value of a third

neighboring search point;

(c4c5d)   if the mean difference value of the second new current search

point is not smaller that the mean difference values of the remaining first group of

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points, determining a fourth value based on a fourth predetermined relationship of the mean difference value of the selected point and the mean difference value of a third neighboring search point; and

(c4c5e) if the mean difference value of the second new current search point is not smaller that the mean difference values of the remaining first group of points, performing motion estimation based on a second correlation between the third value and the fourth value.

36. The software as claimed in claim 29, wherein the operation (c4c) comprises:

(c4c1) determining if the mean difference value of the first intermediate point is greater than mean difference value of the new current search point;

(c4c2) if the mean difference value of the first intermediate point is not greater than the mean difference value of the new current search point, determining a first predetermined number of first search points disposed a first predetermined pixel distance from the new current search point, wherein the first search points and the new current search point form a first group of points;

(c4c4) if the mean difference value of the first intermediate point is not greater than the mean difference value of the new current search point, determining respective mean difference values of the first search points; and

(c4c5) if the mean difference value of the first intermediate point is not greater than the mean difference value of the new current search point, selecting the motion vector point based on the mean difference values of the first group of points.

37.   The software as claimed in claim 36, wherein operation (c4c5) comprises:

(c4c5a)   determining if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points;

(c4c5b)   if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points, determining a second predetermined number of second search points disposed a second predetermined pixel distance from the new current search point, wherein the second search points and the new current search point form a second group of points;

(c4c5c)   if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points, determining respective mean difference values of the second search points; and

(c4c5d)   if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points, selecting the motion vector point from among the second group of points, wherein the motion vector point has a smallest mean difference value of the second group of points.

38.   The software as claimed in claim 36, wherein operation (c4c5) comprises:

(c4c5a)   determining if the mean difference value of the new current search point is smaller that the mean difference values of the remaining first group of points;

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(c4c5b) if the mean difference value of the new current search point is not smaller that the mean difference values of the remaining first group of points, selecting a selected point of the first group of points, wherein the selected point has a mean difference value smaller than the remaining first group of points;

(c4c5c) if the mean difference value of the new current search point is not smaller that the mean difference values of the remaining first group of points, determining a third value based on a third predetermined relationship of the mean difference value of the selected point and the mean difference value of a third neighboring search point;

(c4c5d) if the mean difference value of the new current search point is not smaller that the mean difference values of the remaining first group of points, determining a fourth value based on a fourth predetermined relationship of the mean difference value of the selected point and the mean difference value of a fourth neighboring search point; and

(c4c5e) if the mean difference value of the new current search point is not smaller that the mean difference values of the remaining first group of points, performing motion estimation based on a second correlation between the third value and the fourth value.